KT11-D

ABORT

MD-11-DBKTF-C

EP-DBKTF-C-DL-A NOV 1976

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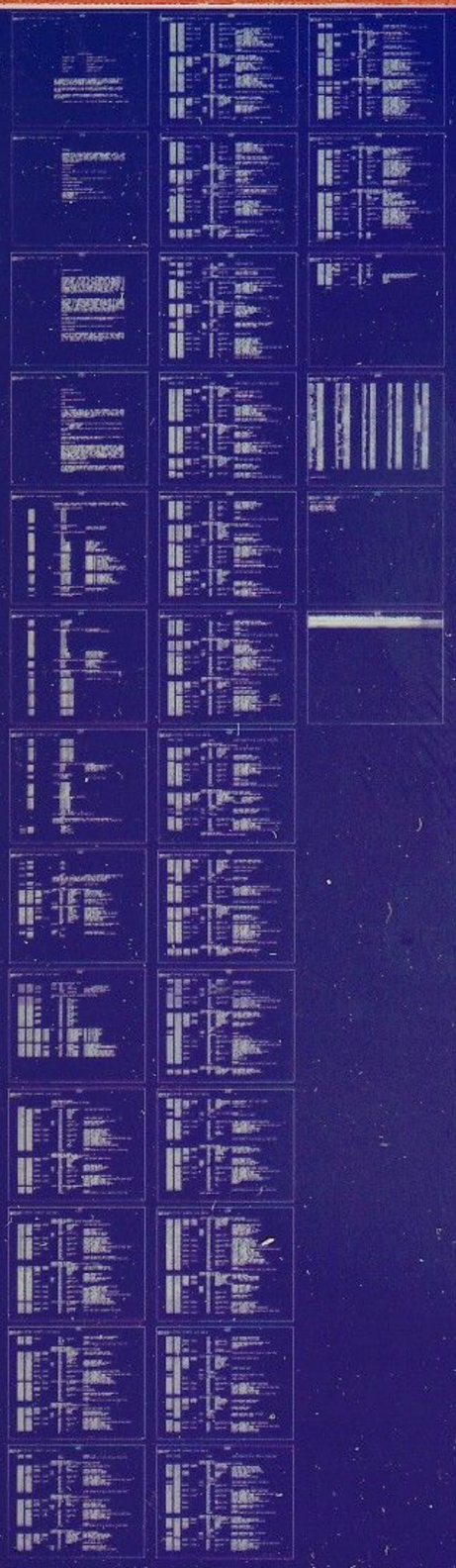

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IDENTIFICATION

PRODUCT CODE:	MAINDEC-11-DBKTF-C-D
PRODUCT NAME:	MEMORY MANAGEMENT ABORT TESTS
DATE:	MAY,1976
MAINTAINER:	DIAGNOSTIC GROUP
AUTHOR:	ROBERT WHITTON

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1.0 ABSTRACT

PROGRAM DBKTF TESTS THE MEMORY MANAGEMENT ABORT LOGIC. THE PROGRAM IS WRITTEN TO CAUSE A MEMORY MANAGEMENT ABORT AT EVERY PDP11/40 MICRO STATE WHERE A MEMORY REFERENCE IS INITIATED. ABORTS ARE IN ALL CASES TRAPPED TO THE KERNEL, HOWEVER, THE INSTRUCTIONS CAUSING THE ABORT ARE EXECUTED IN BOTH MODES (KERNEL AND USER).

2.0 REQUIREMENTS

2.1 EQUIPMENT

PDP-11/40 WITH KT11-D (MEM. MGMT) INSTALLED

2.2 STORAGE

PROGRAM STORAGE - THE ROUTINE USES MEMORY 0-17777

2.3 PRELIMINARY PROGRAMS

TESTS DBKTA-DBKTD

3.0 LOADING AND STARTING PROCEDURE

LOAD PROGRAM INTO MEMORY USING ABS LOADER
LOAD ADDRESS 200
PRESS START.
THE PROGRAM WILL LOOP AND RING BELL ON COMPLETION.

4.0 SWITCH SETTINGS

DO1

5.0 SUBROUTINE ABSTRACTS

5.1 HLT

THE HLT (HALT) INSTRUCTION IS EXECUTED WHEN AN ERROR IS DETECTED NOTE THAT THE HLT (HALT) INSTRUCTION TRAPS TO LOC 4 IN USER MODE. IF A HLT (HALT) INSTRUCTION IS EXECUTED IN THESE MODES THE TRAP IS TAKEN AND THE PROGRAM HALTS AT LOCATION 176 IN KERNEL MODE. PRESSING CONTINUE RESTARTS THE TEST. NOTE: THE USER STACK POINTER IS NOT AFFECTED. TO DETRMINE WHICH TEST THE PROGRAM WAS EXECUTING WHEN THE HLT OCCURRED REFER TO R1 WHOSE CONTENTS ARE THE LAST TEST SUCCESSFULLY EXECUTED AND ALSO THE KERNEL STACK THE TOP WORD OF WHICH IS THE VIRTUAL PC OF THE HLT INSTRUCTION +2.

5.2 SCOPE

THE SCOPE (EMT) SERVICE ROUTINE STORES IN R1 THE PC OF THE LAST TEST SUCCESSFULLY EXECUTED AND MAY BE USED AS AN AID IN DEBUGGING IF THE PROGRAM 'BOMBS' BECAUSE OF A HARDWARE FAILURE. A BRANCH INSTRUCTION MAY BE INSERTED AT THE SCOPE LOCATION TO THE PREVIOUS SCOPE (EMT) INSTRUCTION TO CONTINOUSLY LOOP A TEST. ADDITIONALLY THE SCOPE ROUTINE SETS ALL STACK POINTERS TO THEIR INITIAL SETTINGS (SEE SEC 8.2) AND ENTERS EACH TEST IN KERNEL MODE, PREVIOUS KERNEL MODE.

6.0 ERRORS

THE TEST HALTS WHEN AN ERROR IS DETECTED AND DISPLAYS THE PC+2 OF THE HLT (HALT) INSTRUCTION IN THE ADDRESS LIGHTS.

6.1 ERROR RECOVERY

PRESS CONTINUE OR RESTART AT 200 OR PREVIOUS SCOPE.

6.2 ERROR LOOPING

TO LOOP ON AN ERROR REPLACE THE HLT INSTRUCTION WITH A BRANCH BACK TO THE PREVIOUS SCOPE. NOTE: IF THE ERROR IS INTERMITTENT THE TEST WILL DROP THROUGH THE HLT AND CONTINUE TO THE NEXT TEST. TO CONTINUOSLY LOOP THE TEST REPLACE THE BEQ .+4 PRECEEDING THE HLT WITH THE BRANCH.

7.0 RESTRICTIONS

7.1 STARTING RESTRICTION

NONE

7.2 OPERATIONAL RESTRICTION

NONE

8.0 MISCELLANEOUS

IF THE PROGRAM HALTS IN THE TRAP INTERRUPT VECTOR AREA (0-1000) EXAMINE REGISTER 6 (THE KERNEL STACK PTR). REGISTER 6 CONTAINS THE ADDRESS WHERE THE PC OF THE INSTRUCTION THAT CAUSED THE TRAP IS STORED. EXAMINE ALSO R1 (R1 SPECIFIES THE LAST TEST SUCCESSFULLY COMPLETED)

8.2 STACK POINTER

THE STACK POINTERS ARE INITIALLY SET TO THE FOLLOWING VALUES

KERNEL =1060
USER = 600

AND ARE RESET TO THESE VALUES AT THE START OF EACH SUBTEST (BY SCOPE).

8.3 PASS COUNT

1000(8) PASSES ARE REQUIRED FOR COMPLETION OF THIS PROGRAM; AT WHICH TIME THE BELL WILL RING AT THE TTY.

8.4 DEBUGGING TIPS

WHEN THE FAILING SUBTEST HAS BEEN ISOLATED, REPLACE THE FIRST WORD OF THE INSTRUCTION PRECEEDING THE INSTRUCTION THAT CAUSES THE ABORT WITH A BR SELF (000777), AND RESTART THE PROGRAM. WHEN THE PROGRAM EXECUTES THE BR SELF STOP THE PROGRAM USING SINGLE INSTRUCTION, RESTORE THE INSTRUCTION, AND USING THE MAINTENANCE CARD SINGLE STEP THE PROGRAM THROUGH EACH MICRO STATE OBSERVING THE FLOW IN THE DATA/ADDRESS LIGHTS. THIS PRACTICE HAS BEEN FOUND TO BE SUCCESSFUL IN FINDING MOST MEMORY MANAGEMENT ERRORS.

8.5 MEMORY MANAGEMENT MEMORY MAP

THE MAPPING OF THE MEM MGMT REGISTERS IS DONE AT THE BEGINNING OF THE PROGRAM BEFORE ANY TESTING IS STARTED. THE USER SHOULD ACQUAINT HIMSELF WITH THE MEMORY MANAGEMENT MAP BEFORE USING THIS PROGRAM.

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                        ;COPYRIGHT 1972, 1973,1976 DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASS.
                        ;MEMORY MANAGEMENT ABORT TEST. THIS PROGRAM TESTS MEMORY MGMT ABORT ERRORS

                        ;GENERAL REGISTER ASSIGNMENTS
000000                          R0=%0
000001                          R1=%1
000002                          R2=%2
000003                          R3=%3
000004                          R4=%4
000005                          R5=%5
000006                          SP=%6
000007                          PC=%7

                        ;STACK POINTER REGISTERS
000006                          KSP=%6                  ;KERNEL STACK POINTER
000006                          USP=%6                  ;USER STACK POINTER

                        ;STATUS REGISTER BIT ASSIGNMENTS
000001                          C=1
000002                          V=2
000004                          Z=4
000010                          N=10
000020                          T=20                    ;'T' BIT
000340                          PRTY7=340               ;PRIORITY LEVEL 7
000200                          PRTY4=200               ;PRIORITY LEVEL 4
000000                          KM=000000               ;KERNEL MODE
140000                          UM=140000               ;USER MODE
000000                          PKM=000000              ;PREVIOUS KERNEL MODE
030000                          PUM=030000              ;PREVIOUS USER MODE

                        ;VECTOR ADDRESSES
000010                          ERRVEC=10               ;ADDRESS OF ERROR VECTOR
000014                          TBITVEC=14              ;ADDRESS OF 'T' BIT TRAP VECTOR
000020                          IOTVEC=20               ;ADDRESS OF IOT TRAP VECTOR
000024                          PFVEC=24                ;ADDRESS OF POWER FAIL TRAP VECTOR
000030                          EMTVEC=30               ;ADDRESS OF EMT VECTOR
000034                          TRAPVEC=34              ;ADDRESS OF TRAP VECTOR
000064                          TPVEC=64                ;ADDRESS OF TTY PRINTER INTERRUPT VECTOR
000244                          FPVEC=244               ;ADDRESS OF FLOATING POINT INT. VECTOR
000250                          MMVEC=250               ;ADDRESS OF MEMORY MGMT ERROR TRAP VECTOR

                        ;REGISTER ADDRESSES
177776                          PSW=177776              ;ADDRESS OF STATUS REGISTER
177560                          TKS=177560              ;ADDRESS OF KEYBOARD CSR
177562                          TKB=177562              ;ADDRESS OF KEYBOARD BUFFER
177564                          TPS=177564              ;ADDRESS OF TELEPRINTER CSR
177566                          TPB=177566              ;ADDRESS OF TELEPRINTER BUFFER
177570                          SWR=177570              ;ADDRESS OF CONSOL SWITCH REGISTER

                        ;INITIAL STACK POINTER SETTINGS
001100                          KPTR=1100               ;BOTTOM OF KERNEL STACK
000600                          UPTR=600                ;USER STACK SETTING

                        ;MISCELLANEOUS BIT ASSIGNMENTS
100000                          BIT15=100000
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040000                          BIT14=40000
020000                          BIT13=20000
000400                          BIT8=400
000100                          BIT6=100

                        ;MEMORY MANAGEMENT REGISTER SR0 BIT ASSIGNMENTS
000001                          ENMM=1                  ;ENABLE MEMORY MANAGEMENT
000000                          VS0=0
000002                          VS1=2
000004                          VS2=4
000006                          VS3=6
000010                          VS4=10
000012                          VS5=12
000014                          VS6=14
000016                          VS7=16
000000                          IS=00
000140                          UPG=140
000000                          KPG=000
000400                          DM=400                  ;DESTINATION MODE
020000                          AVA=20000               ;ACCESS VIOLATION ABORT
040000                          PLA=40000               ;PAGE LENGTH ABORT
100000                          NRA=100000              ;NON-RESIDENT ABORT

                        ;PAGE DESCRIPTOR REGISTER (PDR) BIT ASSSIGNMENTS
000010                          ED=10                   ;EXPANSION DIRECTION BIT IN PDR
000000                          UP=0                    ;EXPAND UP
000010                          DWN=10                  ;EXPAND DOWN
000100                          W=100                   ;'W' BIT IN PDR

                        ;MEMORY MANAGEMENT REGISTER ADDRESS ASSIGNMENTS
177572                          SR0=177572              ;ADDRESS OF MEMORY MGMT REGISTER SR0
177574                          SR1=177574              ;    "    "      "      "    SR1
177576                          SR2=177576              ;    "    "      "      "    SR2

177600                          UIPDR0=177600           ;ADDRESS OF USER 'I' PDR'S
177602                          UIPDR1=177602
177604                          UIPDR2=177604
177606                          UIPDR3=177606
177610                          UIPDR4=177610
177612                          UIPDR5=177612
177614                          UIPDR6=177614
177616                          UIPDR7=177616

177640                          UIPAR0=177640
177642                          UIPAR1=177642
177644                          UIPAR2=177644
177646                          UIPAR3=177646
177650                          UIPAR4=177650
177652                          UIPAR5=177652
177654                          UIPAR6=177654
177656                          UIPAR7=177656

172300                          KIPDR0=172300
172302                          KIPDR1=172302
172304                          KIPDR2=172304
172306                          KIPDR3=172306
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                172310                  KIPDR4=172310
                172312                  KIPDR5=172312
                172314                  KIPDR6=172314
                172316                  KIPDR7=172316

                172340                  KIPAR0=172340
                172342                  KIPAR1=172342
                172344                  KIPAR2=172344
                172346                  KIPAR3=172346
                172350                  KIPAR4=172350
                172352                  KIPAR5=172352
                172354                  KIPAR6=172354
                172356                  KIPAR7=172356

                                ;ACCESS CONTROL FIELD DEFINITIONS (IN PDR)
                000000                  NRO=0                   ;NON-RESIDENT ABORT ALL REFS.
                000002                  RDO=2                   ;READ,ABORT ON WRITE
                000004                  RWT=4                   ;TRAP ON READ & WRITE
                000006                  RW=6                    ;READ & WRITE

                                ;INSTRUCTION EQUATES
                000000                  HLT=HALT
                104000                  SCOPE=EMT               ;SCOPE IS AN EMT TRAP


                                ;VIRTUAL ADDRESSES
                016700                  KID=16700
                140000                  KI6=140000
                120000                  UI5=120000
                100000                  UI4=100000
                040000                  UI2=40000
                020000                  UI1=20000
                060000                  UI3=60000
                                ;CORRESPONDING PHYSICAL ADDRESSES
                016600                  PKID=16600
                016700                  PKI6=16700
                017200                  PUI5=17200
                017300                  PUI4=17300
                017400                  PUI3=17400
                017000                  PUI2=17000
                017100                  PUI1=17100
                                        .LIST   ME
                                        .NLIST  MC,MD
                                ;FILL TRAP AND INTERRUPT VECTOR AREA WITH
                                        ;.+2
                                        ;HALT
                                ;UNEXPECTED TRAPS/INTERRUPTS WILL HALT AT VECTOR ADDRESS +2
                                ;AND DISPLAY VECTOR ADDRESS+4 NOTE: LISTING DOES NOT SHOW LOADING THE
                                ;VECTOR AREA.

                                        .NLIST  MC
                000010                  .=ERRVEC
000010          000400                  .WORD   SHLT
                000030                  .=EMTVEC
000030          000442                  .WORD   SCOPEA
```

```
                000046                          .=46
000046  007024                                  $ENDAD

                000052                          .=52
000052  040000                                  40000


                000176                          .=176
000176  000000                                  HALT                    ;ERROR!  TO IDENTIFY WHICH TEST FAILED
                                        ;EXAMINE R1, THE CONTENTS OF WHICH IS THE PC OF THE PRESENT TEST
                                        ;THE TOP WORD ON THE KERNEL STACK CONTAINS THE VIRTUAL
                                        ;ADDRESS OF THE HLT INSTRUCTION IN THE TEST THAT FAILED.
                000200                          .=200
000200  000167  001006                          JMP     START           ;GO START TEST

                000400                          .=400
                                        ;USER HLT (HALT) TRAP SERVICE ROUTINE
000400  042737  000001  177572          SHLT:   BIC     #1,@#SR0        ;TURN MEM MGMT OFF
000406  042737  140000  177776                  BIC     #140000,@#PSW   ;RETURN TO KERNEL
000414  162716  000002                          SUB     #2,(KSP)        ;POINT PC TO TRAPPING INST.
000420  005776  000000                          TST     @(KSP)          ;WAS IT A HLT (HALT)
000424  001404                                  BEQ     SHLTA
000426  062716  000002                          ADD     #2,(KSP)        ;RESTORE PC TO TRAPPING INST.
000432  000137  000012                          JMP     @#ERRVEC+2      ;GO HALT AT 6
000436  000137  000176          SHLTA:  JMP     @#176           ;GO HALT AT ADDRESS 176

                                        ;SCOPE (EMT) SERVICE ROUTINE
000442  005037  177572          SCOPEA: CLR     @#SR0
000446  011601                          MOV     (KSP),R1        ;SAVE PC IN R1
000450  012706  001100                  MOV     #KPTR,KSP       ;SET KERNEL STACK PTR
000454  005046                          CLR     -(KSP)          ;SET UP FOR KERNEL MODE ON RETURN
000456  010146                          MOV     R1,-(KSP)       ;RETURN IN LINE
000460  012746  000600                  MOV     #UPTR,-(KSP)    ;USER STACK PTR ON KERNEL STACK
000464  012737  030000  177776          MOV     #PUM,@#PSW      ;PREVIOUS USER MODE
000472  106606                          MTPD    USP             ;SET USER STACK PTR
000474  001400                          BEQ     SCOPEX
000476  000006          SCOPEX: RTT                             ;RETURN TO NEXT TEST IN KERNEL MODE
                                                                ;WITH ALL STACK PTRS SET UP

                001200                          .=1200
                                        ;TAGS
001200  000000          ICNT:   0               ;CONTAINS PASS COUNT
001202  000000          SR0T:   0               ;CONTAINS SR0 CONTENTS ON ERROR
                001204          TEMP=.
                001212          .=.+6
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                                        ;START MEMORY MANAGEMENT TEST.
001212  000240                  START:  NOP
001214  005067  177760                  CLR     ICNT                    ;CLEAR PASS COUNT
001220  012706  001100          BEGIN:  MOV     #KPTR,KSP       ;SET KERNEL STACK PTR
001224  104000                          SCOPE                   ;SCOPE SETS ALL STACK PTRS
001226  005037  000252                  CLR     @#MMVEC+2       ;KERNEL MODE ON ABORT

                                        ;ROUTINE TO CLEAR MEMORY MANAGEMENT REGISTERS.
001232  000240                  MMO:    NOP
001234  005067  176332                  CLR     SR0
001240  012702  177600                  MOV     #UIPDR0,R2
001244  012703  000010                  MOV     #8.,R3
001250  005022                          CLR     (R2)+
001252  077302                          SOB     R3,.-2
001254  012702  177640                  MOV     #UIPAR0,R2
001260  012703  000010                  MOV     #8.,R3
001264  005022                          CLR     (R2)+
001266  077302                          SOB     R3,.-2
001270  012702  172300                  MOV     #KIPDR0,R2
001274  012703  000010                  MOV     #8.,R3
001300  005022                          CLR     (R2)+
001302  077302                          SOB     R3,.-2
001304  012702  172340                  MOV     #KIPAR0,R2
001310  012703  000010                  MOV     #8.,R3
001314  005022                          CLR     (R2)+
001316  077302                          SOB     R3,.-2

001320  012737  073006  172300  MMK:    MOV     #73006,@#KIPDR0 ;RW, UP 167 BLOCKS
001326  012737  000006  172314          MOV     #6,@#KIPDR6     ;RW, UP 1 BLOCK
001334  012737  077406  172316          MOV     #77406,@#KIPDR7 ;RW, UP 200 BLOCKS
001342  012737  073006  177600          MOV     #73006,@#UIPDR0 ;RW, UP 167 BLOCKS
001350  012737  000006  177604          MOV     #6,@#UIPDR2     ;RW, UP 1 BLOCK
001356  012737  000006  177602          MOV     #6,@#UIPDR1     ;RW, UP 1 BLOCK
001364  012737  000006  177610          MOV     #6,@#UIPDR4     ;RW, UP 1 BLOCK
001372  012737  000006  177612          MOV     #6,@#UIPDR5     ;RW, UP 1 BLOCK

001400  005067  170734                  CLR     KIPAR0          ;VA=PA=0000-16677
001404  012767  000167  170742          MOV     #167,KIPAR6     ;VA=140000-140077;PA=16700-16777
001412  012767  007600  170736          MOV     #7600,KIPAR7    ;VA=160000-177776,PA=760000-777776
001420  005067  176214                  CLR     UIPAR0          ;VA=PA=0-16677
001424  012767  000170  176212          MOV     #170,UIPAR2     ;VA=40000-40077/PA=17000-17077
001432  012767  000171  176202          MOV     #171,UIPAR1     ;VA=20000-20077/PA=17100-17177
001440  012767  000172  176204          MOV     #172,UIPAR5     ;VA=120000-120077/PA=17200-17277
001446  012767  000173  176174          MOV     #173,UIPAR4     ;VA=100000-100077/PA=17300-17377
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```
                                        ;CHECK ABORT AT SRC00
                                        ;ABORTS WHEN SOURCE OPERAND IS FETCHED

                                        ;SOURCE MODE=1
001454                                  T0:
001454  012737  001510  000250                MOV     #T0C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001462  005067  176564                      CLR     MMVEC+2
001466  012703  016700                      MOV     #KIO,R3
001472  010302                            MOV     R3,R2
001474  005013                            CLR     (R3)
001476  005237  177572                    INC     @#SR0           ;ENABLE MEMORY MGMT
001502  000277                            SCC
001504  011302                  T0A:      MOV     (R3),R2         ;MEM MGMT LENGTH ABORT AT SRC00
001506  000000                  T0B:      HLT                     ;ERROR! DID NOT ABORT
001510  022706  001074          T0C:      CMP     #KPTR-4,KSP     ;CHECK STACK PTR
001514  001401                            BEQ     .+4
001516  000000                            HLT
001520  022766  000017  000002            CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
001526  001401                            BEQ     .+4             ;WAS SAVED ON THE STACK
001530  000000                            HLT                     ;ERROR! INCORRECT STATUS
001532  022767  040001  176032            CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
001540  001401                            BEQ     .+4             ;& FAILING PAGE #)
001542  000000                            HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001544  022767  001504  176024            CMP     #T0A,SR2        ;CHECK CONTENTS OF SR2
001552  001401                            BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001554  000000                            HLT                     ;ERROR! INCORRECT PC IN SR2
001556  020203                            CMP     R2,R3           ;CHECK THAT INSTRUCTIONS AS ABORTED
001560  001401                            BEQ     .+4
001562  000000                            HLT                     ;ERROR!
001564  104000                            SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                        ;CHECK ABORT AT SRC01
                                        ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                        ;SOURCE MODE=2,BYTE INSTRUCTION
001566  012737  001614  000250            MOV     #T1C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001574  012702  016700                    MOV     #KIO,R2
001600  010204                            MOV     R2,R4
001602  005012                            CLR     (R2)
001604  005237  177572                    INC     @#SR0           ;ENABLE MEMORY MGMT
001610  122202                  T1A:      CMPB    (R2)+,R2        ;SEG LENGTH ABORT AT SRC01
001612  000000                  T1B:      HLT                     ;ERROR! DID NOT ABORT
001614  022706  001074          T1C:      CMP     #KPTR-4,KSP     ;CHECK STACK PTR
001620  001401                            BEQ     .+4
001622  000000                            HLT
001624  022767  040001  175740            CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
001632  001401                            BEQ     .+4             ;& FAILING PAGE #)
001634  000000                            HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001636  022767  001610  175732            CMP     #T1A,SR2        ;CHECK CONTENTS OF SR2
001644  001401                            BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001646  000000                            HLT                     ;ERROR! INCORRECT PC IN SR2
                                        ;CHECK THAT REGISTER INCREMENTED PROPERLY
001650  022702  016701                    CMP     #KIO+1,R2
001654  001401                            BEQ     .+4
001656  000000                            HLT                     ;ERROR!
001660  104000                            SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
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                                        ;CHECK ABORT AT SRC13
                                        ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                        ;SOURCE MODE=3
001662  012737  001710  000250          MOV     #T2C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001670  012705  016700                  MOV     #KIO,R5
001674  010504                          MOV     R5,R4
001676  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
001702  000277                          SCC                     ;PRESET CC'S
001704  153504                  T2A:    BISB    @(R5)+,R4       ;NON-RES ABORT AT S13.10
001706  000000                  T2B:    HLT                     ;ERROR! FAILED TO ABORT
001710                          T2C:
001710  022766  000017  000002          CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
001716  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
001720  000000                          HLT                     ;ERROR! INCORRECT STATUS
001722  022767  040001  175642          CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
001730  001401                          BEQ     .+4             ;& FAILING PAGE #)
001732  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
001734  022767  001704  175634          CMP     #T2A,SR2        ;CHECK CONTENTS OF SR2
001742  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
001744  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
001746  022705  016702                  CMP     #KIO+2,R5
001752  001401                          BEQ     .+4
001754  000000                          HLT                     ;ERROR! R5 DID NOT AUTO-INCREMENT
001756  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                        ;CHECK ABORT AT SRC02
                                        ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                        ;SOURCE MODE=4,USER MODE
001760  012737  002014  000250          MOV     #T3C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
001766  012767  170000  176002          MOV     #UM+PUM,PSW     ;USER MODE!!!, PREV USER MODE
001774  012702  100000                  MOV     #UI4,R2
002000  010203                          MOV     R2,R3
002002  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002006  000277                          SCC                     ;PRESET CC'S
002010  064203                  T3A:    ADD     -(R2),R3        ;NON-RESIDENT ABORT AT SRC02
002012  000000                  T3B:    HLT                     ;ERROR! FAILED TO ABORT
002014  022706  001074          T3C:    CMP     #KPTR-4,KSP     ;CHECK STACK PTR
002020  001401                          BEQ     .+4
002022  000000                          HLT
002024  022766  170017  000002          CMP     #UM+PUM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
002032  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
002034  000000                          HLT                     ;ERROR! INCORRECT STATUS
002036  022767  140147  175526          CMP     #NRA+PLA+UPG+VS3+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
002044  001401                          BEQ     .+4             ;& FAILING PAGE #)
002046  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002050  022767  002010  175520          CMP     #T3A,SR2        ;CHECK CONTENTS OF SR2
002056  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
002060  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
                                        ;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (UIPDR2)
002062  032767  000100  175514          BIT     #W,UIPDR2       ;CHECK CONTENTS OF REFERENCED PDR
002070  001401                          BEQ     .+4
002072  000000                          HLT                     ;ERROR!
002074  042767  000100  175502          BIC     #W,UIPDR2
002102  022702  077776                  CMP     #UI4-2,R2       ;CHECK THAT AUTO- DECREMENT TOOK PLACE
002106  001401                          BEQ     .+4
```

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002110  000000                          HLT                     ;ERROR! R2 FAILED TO AUTO-DECREMENT
002112  022703  100000                  CMP     #UI4,R3         ;CHECK THAT R3 WAS NOT CHANGED
002116  001401                          BEQ     .+4
002120  000000                          HLT                     ;ERROR!
002122  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SRC13
                                ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE=5,USER MODE
002124  012737  002164  000250          MOV     #T4C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
002132  012767  170000  175636          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
002140  012704  120002                  MOV     #UI5+2,R4
002144  010405                          MOV     R4,R5
002146  012737  177777  017200          MOV     #-1,@#PUI5
002154  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002160  145405                  T4A:    BICB    @-(R4),R5       ;NON-RESIDENT ABORT AT SRC13
002162  000000                  T4B:    HLT                     ;ERROR! FAILED TO ABORT
002164  022706  001074          T4C:    CMP     #KPTR-4,KSP     ;CHECK STACK PTR
002170  001401                          BEQ     .+4
002172  000000                          HLT
002174  022767  140157  175370          CMP     #NRA+PLA+UPG+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
002202  001401                          BEQ     .+4             ;& FAILING PAGE #)
002204  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002206  022767  002160  175362          CMP     #T4A,SR2        ;CHECK CONTENTS OF SR2
002214  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
002216  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
                                ;CHECK CONTENTS OF REFERENCED PAGE DESCRIPTOR REGISTER (UIPDR5)
002220  032767  000100  175364          BIT     #W,UIPDR5       ;CHECK CONTENTS OF REFERENCED PDR
002226  001401                          BEQ     .+4
002230  000000                          HLT                     ;ERROR!
002232  042767  000100  175352          BIC     #W,UIPDR5
002240  022704  120000                  CMP     #UI5,R4 ;CHECK AUTO-DECREMENT
002244  001401                          BEQ     .+4
002246  000000                          HLT                     ;ERROR! FAILED TO AUTO-DECREMENT R4
002250  022705  120002                  CMP     #UI5+2,R5       ;CHECK THAT R5 WAS UNCHANGED
002254  001401                          BEQ     .+4
002256  000000                          HLT                     ;ERROR!
002260  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SRC08
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE = 6
002262  012737  002306  000250          MOV     #T6C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
002270  012702  177777                  MOV     #-1,R2
002274  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002300  016702  014374          T6A:    MOV     KI0,R2          ;SEG LENGTH ABORT AT SRC08
002304  000000                  T6B:    HLT                     ;ERROR! FAILED TO ABORT
002306                          T6C:
002306  022767  040001  175256          CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
002314  001401                          BEQ     .+4             ;& FAILING PAGE #)
002316  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002320  022767  002300  175250          CMP     #T6A,SR2        ;CHECK CONTENTS OF SR2
002326  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
002330  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
002332  005202                          INC     R2              ;CHECK THAT R2 WAS NOT CHANGED
002334  001401                          BEQ     .+4
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002336  000000                          HLT                     ;ERROR!
002340  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SRC13
                                ;ABORTS WHEN ADDRESS OF SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE = 7, PC
002342  012737  002364  000250          MOV     #T7C,@#MMVEC    ;LOAD MEM MGMT ERROR VECTOR
002350  005004                          CLR     R4
002352  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002356  067404  016700          T7A:    ADD     @K10(R4),R4     ;SEG LEN ABORT AT SRC13
002362  000000                  T7B:    HLT                     ;ERROR! FAILED TO ABORT
002364                          T7C:
002364  022767  040001  175200          CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
002372  001401                          BEQ     .+4             ;& FAILING PAGE #)
002374  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002376  022767  002356  175172          CMP     #T7A,SR2        ;CHECK CONTENTS OF SR2
002404  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
002406  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
002410  005704                          TST     R4
002412  001401                          BEQ     .+4
002414  000000                          HLT
002416  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SRC15
                                ;ABORTS WHEN SOURCE OPERAND IS FETCHED
                                ;SOURCE MODE = 3,PC
002420  012737  002442  000250          MOV     #T10C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
002426  005003                          CLR     R3
002430  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002434  013703  016700          T10A:   MOV     @#K10,R3        ;SEG LEN ABORT AT SRC15
002440  000000                  T10B:   HLT                     ;ERROR! FAILED TO ABORT
002442                          T10C:
002442  022767  040001  175122          CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
002450  001401                          BEQ     .+4             ;& FAILING PAGE #)
002452  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002454  022767  002434  175114          CMP     #T10A,SR2       ;CHECK CONTENTS OF SR2
002462  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
002464  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
002466  005703                          TST     R3
002470  001401                          BEQ     .+4
002472  000000                          HLT                     ;ERROR!
002474  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS


                                ;CHECK ABORT AT RTI.00
                                ;ABORTS WHEN TOP WORD OFF STACK (PC) IS FETCHED
002476  012737  002544  000250          MOV     #T13C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
002504  012767  170000  175264          MOV     #UM+PUM,PSW     ;USER MODE!!! PREV USER MODE!!
002512  012706  040100                  MOV     #UI2+100,USP    ;USER STACK PTR IS NON-RES
002516  012737  002542  017100          MOV     #T13D,@#PUI2+100        ;LOAD 'NEW' PC
002524  005037  017102                  CLR     @#PUI2+102
002530  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002534  000277                          SCC
002536  000002                  T13A:   RTI                     ;NON-RES ABORT AT RTI.00
002540  000000                  T13B:   HLT                     ;ERROR! FAILED TO ABORT
002542  000000                  T13D:   HLT                     ;ERROR! RTI FAILED & DID NOT ABORT
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002544  022706  001074          T13C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
002550  001401                          BEQ     .+4
002552  000000                          HLT
002554  022766  170017  000002          CMP     #UM+PUM+17,2(KSP)       ;CHECK THAT CORRECT STATUS
002562  001401                          BEQ     .+4                     ;WAS SAVED ON THE STACK
002564  000000                          HLT                             ;ERROR! INCORRECT STATUS
002566  022767  040145  174776          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
002574  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002576  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002600  022767  002536  174770          CMP     #T13A,SR2               ;CHECK CONTENTS OF SR2
002606  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002610  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
002612  106506                          MFPD    USP                     ;PUSH USER STACK PTR ONTO KERNEL STACK
002614  022716  040102                  CMP     #UI2+102,(KSP)          ;CHECK THAT USER STACK PTR WAS POPPED
002620  001401                          BEQ     .+4
002622  000000                          HLT                             ;ERROR!
002624  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT RTI.01
                                ;ABORTS WHEN SECOND WORD ON STACK (STATUS) IS FETCHED
002626  012737  002672  000250          MOV     #T14C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
002634  012767  170000  175134          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
002642  012706  100076                  MOV     #UI4+76,USP
002646  012737  002670  017376          MOV     #T14D,@#PUI4+76 ;LOAD USER STACK (PHYS ADRS.)
002654  005037  017400                  CLR     @#PUI4+100      ;AND 'NEW' STATUS
002660  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002664  000006                  T14A:   RTT                     ;SEG LEN ABORT AFTER FIRST POP RTI.01
002666  000000                  T14B:   HLT                     ;ERROR! FAILED TO ABORT
002670  000000                  T14D:   HLT                     ;ERROR!
002672                          T14C:
002672  022767  040151  174672          CMP     #PLA+UPG+VS4+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
002700  001401                          BEQ     .+4                     ;& FAILING PAGE #)
002702  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
002704  022767  002664  174664          CMP     #T14A,SR2               ;CHECK CONTENTS OF SR2
002712  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
002714  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
002716  106506                          MFPD    USP                     ;PUSH USER STACK PTR ONTO KERNEL STACK
002720  022716  100102                  CMP     #UI4+102,(KSP)          ;CHECK THAT USER STACK PTR POPPED TWICE
002724  001401                          BEQ     .+4
002726  000000                          HLT
002730  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT RTS.02
                                ;ABORTS WHEN TOP WORD ON USER STACK (RETURN PC) IS FETCHED
002732  012767  170000  175036          MOV     #UM+PUM,PSW     ;USER MODE!!! PREV USER MODE!!
002740  012706  020100                  MOV     #UI[illegible]0,USP
002744  012737  002770  000250          MOV     #T16C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
002752  012705  002766                  MOV     #T16D,R5
002756  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
002762  000205                  T16A:   RTS     5               ;ABORTS AT RTS.02 (STACK IS NON-RES)
002764  000000                  T16B:   HLT                     ;ERROR! RTS& ABORT FAILED
002766  000000                  T16D:   HLT                     ;ERROR! ABORT FAILED
002770  022706  001074          T16C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
002774  001401                          BEQ     .+4
002776  000000                          HLT
003000  022767  040143  174564          CMP     #PLA+UPG+VS1+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
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003006  001401                          BEQ     .+4             ;& FAILING PAGE #)
003010  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003012  022767  002762  174556          CMP     #T16A,SR2       ;CHECK CONTENTS OF SR2
003020  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003022  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003024  022705  002766                  CMP     #T16D,R5        ;CHECK THAT R5 DID NOT CHANGE
003030  001401                          BEQ     .+4
003032  000000                          HLT                     ;ERROR!
003034  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
003036  022716  020102                  CMP     #UI1+102,(KSP)  ;CHECK THAT USER STACK WAS POPPED
003042  001401                          BEQ     .+4
003044  000000                          HLT                     ;ERROR! INCORRECT USER STACK PTR
003046  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS
                                ;CHECK ABORT AT SRC07
                                ;ABORTS WHEN SOURCE INDEX IS FETCHED
                                ;SOURCE MODE = 6, PC
003050  012737  003112  000250          MOV     #T20C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003056  012702  177777                  MOV     #-1,R2          ;PRESET DEST REG
003062  012737  016702  016676          MOV     #16702,@#KIO-2  ;16702,000000 IS A MOV .+4,R2
003070  005037  016700                  CLR     @#KIO           ;INSTRUCTION
003074  005037  016702                  CLR     @#KIO+2
003100  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003104  000277                          SCC                     ;PRESET CC'S
003106  000137  016676                  JMP     @#KIO-2         ;GO TO MOV INST.
        003112                          RETURN=.
                                ;************************** NOTE PC CHANGE ************************************
        016676                          .=KIO-2
016676  016702  000000          T20A:   MOV     .+4,R2          ;SEG LEN ABORT WHEN INDEX VALUE IS FETCHED
016702  000000                  T20B:   HLT                     ;ERROR! FAILED TO ABORT
                                ;************************** RETURN PC *****************************************
        003112                          .=RETURN
003112  022706  001074          T20C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
003116  001401                          BEQ     .+4
003120  000000                          HLT
003122  022766  000017  000002          CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
003130  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
003132  000000                          HLT                     ;ERROR! INCORRECT STATUS
003134  022767  040001  174430          CMP     #PLA+IS+VSO+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
003142  001401                          BEQ     .+4             ;& FAILING PAGE #)
003144  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003146  022767  016676  174422          CMP     #T20A,SR2       ;CHECK CONTENTS OF SR2
003154  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003156  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003160  005202                          INC     R2
003162  001401                          BEQ     .+4
003164  000000                          HLT
003166  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SRC10
                                ;ABORTS WHEN SOURCE INDEX IS FETCHED
                                ;SOURCE MODE = 7
003170  012737  003232  000250          MOV     #T21C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003176  012737  177777  016700          MOV     #-1,@#PKI6
003204  012702  140000                  MOV     #KI6,R2         ;LOAD INDEX REGISTER
003210  012737  017202  016676          MOV     #017202,@#KIO-2 ;017202,000000 IS A MOV  @0(R2),R2
003216  005037  016700                  CLR     @#KIO           ;INSTRUCTION
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003222  005237  177572                 INC     @#SR0           ;ENABLE MEMORY MGMT
003226  000137  016676                 JMP     @#KIO-2
        003232                          RETURN=.
                                ;***************************** NOTE PC CHANGE ******************************
        016676                          .=KIO-2
016676  017202  000000          T21A:   MOV     20(R2),R2       ;SEG LEN ABORT AT SRC10
016702  000000                  T21B:   HLT                     ;ERROR! FAILED TO ABORT
        003232                          .=RETURN
                                ;************************* RETURN PC ***********************************

003232                          T21C:
003232  022767  040001  174332          CMP     #PLA+IS+VSO+1,SR0       ;CHECK SR0 (ABORT CONDITIONS
003240  001401                          BEQ     .+4             ;& FAILING PAGE #)
003242  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003244  022767  016676  174324          CMP     #T21A,SR2       ;CHECK CONTENTS OF SR2
003252  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003254  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003256  022702  140000                  CMP     #KI6,R2 ;CHECK THAT R2 IS UNCHANGED
003262  001401                          BEQ     .+4
003264  000000                          HLT                     ;ERROR!
003266  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT FET03
                                ;ABORTS WHEN INST FOLLOWING SOB IS FETCHED
003270  012703  000001                  MOV     #1,%3
003274  012737  077302  016676          MOV     #077302,@#KIO-2 ;077302=SOB  R3,.-2
003302  005037  016674                  CLR     @#KIO-4         ;CLEAR INST. PRECEDING SOB (.-2)
003306  005037  016700                  CLR     @#KIO           ;PUT HLT FOLLOWING SOB
003312  012737  003332  000250          MOV     #T22C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003320  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003324  000277                          SCC                     ;PRESET CC'S
003326  000137  016676                  JMP     @#KIO-2         ;GO TO SOB INST.

        003332                          RETURN=.
        016674                          .=KIO-4
016674  000000          T22:    HLT                     ;ERROR! SOB BRANCHED & FAILED TO ABORT
016676  077302          T22A:   SOB     R3,.-2          ;ABORTS WHEN NEXT INST. IS FETCHED
016700  000000          T22AA:  HLT                     ;ERROR! FAILED TO ABORT
016702  000000          T22B:   0
        003332                          .=RETURN

003332  022706  001074          T22C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
003336  001401                          BEQ     .+4
003340  000000                          HLT
003342  022766  000017  000002          CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
003350  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
003352  000000                          HLT                     ;ERROR! INCORRECT STATUS
003354  022767  040001  174210          CMP     #PLA+VSO+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
003362  001401                          BEQ     .+4             ;& FAILING PAGE #)
003364  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003366  022767  016676  174202          CMP     #T22A,SR2       ;CHECK CONTENTS OF SR2
003374  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003376  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003400  005703                          TST     R3              ;CHECK THAT R3 DECREMENTD
003402  001401                          BEQ     .+4
003404  000000                          HLT                     ;ERROR! R3 WAS NOT DECREMENTED BY SOB
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003406  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV16
                                ;ABORTS WHEN DEST OPERAND IS FETCHED
003410  012767  030000  174360          MOV     #KM+PUM,PSW
003416  012737  003440  000250          MOV     #T24C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003424  012702  040000                  MOV     #UI2,R2
003430  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003434  106542                  T24A:   MFPD    -(R2)           ;NON-RESIDENT ABORT AT MOV16
003436  000000                  T24B:   HLT
003440  022706  001074          T24C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
003444  001401                          BEQ     .+4
003446  000000                          HLT
003450  022767  040143  174114          CMP     #UPG+PLA+VS1+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
003456  001401                          BEQ     .+4             ;& FAILING PAGE #)
003460  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003462  022767  003434  174106          CMP     #T24A,SR2       ;CHECK CONTENTS OF SR2
003470  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003472  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003474  022702  037776                  CMP     #UI2-2,R2       ;CHECK THAT R2 AUTO-DECREMENTED
003500  001401                          BEQ     .+4
003502  000000                          HLT                     ;ERROR! R2 DID NOT AUTO-DECREMENT
003504  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT DST00
                                ;ABORTS WHEN DEST OPERAND IS FETCHED
003506  012737  003536  000250          MOV     #T25C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003514  012702  177572                  MOV     #SR0,R2
003520  012767  170000  174250          MOV     #UM+PUM,PSW
003526  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003532  005012                  T25A:   CLR     (R2)            ;ABORT AT DST00
003534  000000                  T25B:   HLT                     ;ERROR! FAILED TO ABORT
003536  022706  001074          T25C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
003542  001401                          BEQ     .+4
003544  000000                          HLT
003546  022767  140157  174016          CMP     #NRA+PLA+UPG+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
003554  001401                          BEQ     .+4             ;& FAILING PAGE #)
003556  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003560  022767  003532  174010          CMP     #T25A,SR2       ;CHECK CONTENTS OF SR2
003566  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003570  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003572  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT DST01
                                ;ABORTS WHEN DEST OPERAND IS FETCHED
003574  012737  003624  000250          MOV     #T30C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003602  012703  016677                  MOV     #KI0-1,R3
003606  012737  177777  016700          MOV     #-1,@#KI0
003614  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003620  142323                  T30A:   BICB    (R3)+,(R3)+     ;SEG LENGTH ABORT AT DST01
003622  000000                          HLT                     ;ERROR! FAILED TO ABORT

003624                          T30C:
003624  022767  040001  173740          CMP     #PLA+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
003632  001401                          BEQ     .+4             ;& FAILING PAGE #)
003634  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
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003636  022767  003620  173732          CMP     #T30A,SR2       ;CHECK CONTENTS OF SR2
003644  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003646  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003650  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
003654  022703  016701                  CMP     #KI0+1,R3       ;CHECK AUTO-INC TWICE
003660  001401                          BEQ     .+4
003662  000000                          HLT                     ;ERROR!
003664  005237  016700                  INC     @#KI0
003670  001401                          BEQ     .+4
003672  000000                          HLT                     ;ERROR!
003674  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT DST04
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
003676  012737  003746  000250          MOV     #T31C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
003704  012702  040000                  MOV     #UI2,R2
003710  012703  017100                  MOV     #PUI1,R3
003714  012713  177777                  MOV     #-1,(R3)
003720  011337  017000                  MOV     (R3),@#PUI2
003724  012703  020002                  MOV     #UI1+2,R3       ;R3= USER VIRTUAL ADDRESS
003730  012767  170000  174040          MOV     #UM+PUM,PSW
003736  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
003742  114332                  T31A:   MOVB    -(R3),@(R2)+    ;NON-RESIDENT ABORT AT DST04
003744  000000                  T31B:   HLT                     ;ERROR! FAILED TO ABORT

003746                          T31C:
003746  022767  140157  173616          CMP     #NRA+PLA+UPG+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
003754  001401                          BEQ     .+4             ;& FAILING PAGE #)
003756  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
003760  022767  003742  173610          CMP     #T31A,SR2       ;CHECK CONTENTS OF SR2
003766  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
003770  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
003772  022702  040002                  CMP     #UI2+2,R2       ;CHECK AUTO-INC
003776  001401                          BEQ     .+4
004000  000000                          HLT                     ;ERROR!
004002  022703  020001                  CMP     #UI1+1,R3       ;CHECK AUTO DECREMENT OF R3
004006  001401                          BEQ     .+4
004010  000000                          HLT                     ;ERROR! R3 NOT AUTO-DECREMENTED
004012  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV03
004014  012737  004060  000250          MOV     #T32C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004022  012767  170000  173746          MOV     #UM+PUM,PSW
004030  012706  000600                  MOV     #UPTR,USP
004034  005016                          CLR     (USP)
004036  012702  060000                  MOV     #UI3,R2
004042  012737  177777  017400          MOV     #-1,@#PUI3
004050  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
004054  006632                  T32A:   MTPI    @(R2)+          ;NON-RESIDENT ABORT AT MOV03
004056  000000                  T32B:   HLT                     ;ERROR! FAILED TO ABORT
004060                          T32C:
004060  022767  100147  173504          CMP     #NRA+UPG+VS3+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004066  001401                          BEQ     .+4             ;& FAILING PAGE #)
004070  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004072  022767  004054  173476          CMP     #T32A,SR2       ;CHECK CONTENTS OF SR2
004100  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
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004102  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004104  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
004106  022716  000602                  CMP     #UPTR+2,(KSP)   ;CHECK THAT USER STACK PTR POPPED
004112  001401                          BEQ     .+4
004114  000000                          HLT                     ;ERROR!
004116  022702  060002                  CMP     #UI3+2,R2       ;CHECK AUTO-INC
004122  001401                          BEQ     .+4
004124  000000                          HLT                     ;ERROR!
004126  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV11
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
004130  012737  004164  000250          MOV     #T33C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004136  012767  030000  173632          MOV     #KM+PUM,PSW
004144  012716  117776                  MOV     #UI5-2,(KSP)    ;NON-RES ADDRESS
004150  012746  140000                  MOV     #KI6,-(KSP)     ;ADDRESS POINTER
004154  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
004160  106636                  T33A:   MTPD    @(KSP)+         ;NON-RESIDENT ABORT AT MOV11 WHEN MTPD
                                                                ;ADDRESSES FINAL ADDRESS
004162  000000                  T33B:   HLT                     ;ERROR! FAILED TO ABORT
004164                          T33C:
004164  022767  040151  173400          CMP     #PLA+UPG+VS4+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004172  001401                          BEQ     .+4             ;& FAILING PAGE #)
004174  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004176  022767  004160  173372          CMP     #T33A,SR2       ;CHECK CONTENTS OF SR2
004204  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004206  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004210  106506                          MFPD    KSP             ;GET KERNEL STACK PTR
004212  022716  001076                  CMP     #KPTR-2,(KSP)   ;CHECK THAT KERNEL STACK PTR POPPED TWICE
004216  001401                          BEQ     .+4
004220  000000                          HLT                     ;ERROR!
004222  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV15
                                ;ABORTS WHEN ADDRESS OF DEST OPERAND IS FETCHED
                                ;DM=5
004224  012737  004260  000250          MOV     #T35C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004232  012704  016702                  MOV     #KI0+2,R4
004236  012727  020000  016676          MOV     #20000,#KI0-2
004244  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
004250  000277                          SCC
004252  112754  177777          T35A:   MOVB    #-1,@-(R4)      ;SEG LENGTH ABORT AT MOV15
004256  000000                  T35B:   HLT                     ;ERROR! FAILED TO ABORT
004260                          T35C:
004260  022766  000017  000002          CMP     #17,2(KSP)      ;CHECK THAT CORRECT STATUS
004266  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
004270  000000                          HLT                     ;ERROR! INCORRECT STATUS
004272  022767  040001  173272          CMP     #PLA+VS0+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
004300  001401                          BEQ     .+4             ;& FAILING PAGE #)
004302  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004304  022767  004252  173264          CMP     #T35A,SR2       ;CHECK CONTENTS OF SR2
004312  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004314  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004316  022704  016700                  CMP     #KI0,R4
004322  001401                          BEQ     .+4
004324  000000                          HLT                     ;ERROR!
```

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004326  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT DST15
                                ;ABORTS WHEN DEST OPERAND IS FETCHED
                                ;DM=4
004330  012737  004362  000250          MOV     #T36C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004336  012704  140002                  MOV     #KI6+2,R4
004342  012703  016702                  MOV     #KID+2,R3
004346  012713  177777                  MOV     #-1,(R3)
004352  005237  177572                  INC     @#SRD           ;ENABLE MEMORY MGMT
004356  154443                  T36A:   BISB    -(R4),-(R3)     ;SEG LENGTH ABORT AT DST15
004360  000000                  T36B:   HLT                     ;ERROR! FAILED TO ABORT

004362                          T36C:
004362  022767  040001  173202          CMP     #PLA+1,SRD      ;CHECK SRD (ABORT CONDITIONS
004370  001401                          BEQ     .+4             ;& FAILING PAGE #)
004372  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004374  022767  004356  173174          CMP     #T36A,SR2       ;CHECK CONTENTS OF SR2
004402  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004404  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004406  022703  016701                  CMP     #KID+1,R3       ;CHECK AUTO-DEC
004412  001401                          BEQ     .+4
004414  000000                          HLT                     ;ERROR!
004416  022704  140001                  CMP     #KI6+1,R4       ;CHECK AUTO-DEC
004422  001401                          BEQ     .+4
004424  000000                          HLT                     ;ERROR! AUTO-DEC FAILED
004426  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS


                                ;CHECK ABORT AT MOV0B
                                ;WHEN INSTRUCTION FETCHES DESTINATION INDEX VALUE
004430  012737  004476  000250          MOV     #T40C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004436  012767  170000  173332          MOV     #UM+PUM,PSW
004444  012737  113767  017074          MOV     #113767,@#PUI2+74       ;113767,020001,177776
004452  012737  020001  017076          MOV     #20001,@#PUI2+76        ;IS A MOVB  @#20001,.+4
004460  012737  177776  017100          MOV     #177776,@#PUI2+100      ;INSTRUCTION
004466  005237  177572                  INC     @#SRD           ;ENABLE MEMORY MGMT
004472  000137  040074                  JMP     @#UI2+74
                004476                  RETURN=.
                017074                  .=PUI2+74
017074  113767  020001  177776  T40A:   MOVB    @#20001,.+4     ;SEG LENGTH ABORT WHEN INST. FETCHES
                                                                ;DEST INDEX WORD AT MOV0B
017102  000000                  T40B:   HLT                     ;ERROR! FAILED TO ABORT
                004476                  .=RETURN

004476                          T40C:
004476  022767  040145  173066          CMP     #PLA+UPG+VS2+1,SRD      ;CHECK SRD (ABORT CONDITIONS
004504  001401                          BEQ     .+4             ;& FAILING PAGE #)
004506  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004510  022767  040074  173060          CMP     #UI2+74,SR2     ;CHECK CONTENTS OF SR2
004516  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004520  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004522  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV17
                                ;WHEN INSTRUCTION FETCHES DESTINATION OPERAND
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004524  012737  004572  000250          MOV     #T41C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004532  012767  170000  173236          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
004540  012703  100000                  MOV     #UI4,R3
004544  012704  100102                  MOV     #UI4+102,R4
004550  012737  010344  017200          MOV     #010344,@#PUI5  ;012344 = MOV  R3,-(R4)
004556  005037  017202                  CLR     @#PUI5+2
004562  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
004566  000137  120000                  JMP     @#UI5
        004572                          RETURN=.
        017200                          .=PUI5
017200  010344                  T41A:   MOV     R3,-(R4)        ;ABORT AT MOV17
017202  000000                  T41B:   HLT                     ;ERROR! FAILED TO ABORT
        004572                          .=RETURN

004572                          T41C:
004572  022767  040151  172772          CMP     #PLA+UPG+VS4+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
004600  001401                          BEQ     .+4             ;& FAILING PAGE #)
004602  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004604  022767  120000  172764          CMP     #UI5,SR2        ;CHECK CONTENTS OF SR2
004612  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004614  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004616  022704  100100                  CMP     #UI4+100,R4
004622  001401                          BEQ     .+4
004624  000000                          HLT
004626  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT MOV16
                                ;(WHEN INSTRUCTION FETCHES ADDRESS OF DESTINATION OPERAND)
004630  012737  004666  000250          MOV     #T42C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004636  012767  030000  173132          MOV     #KM+PUM,PSW
004644  012703  140102                  MOV     #KI6+102,R3
004650  012737  177777  017000          MOV     #-1,@#PKI6+100
004656  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
004662  106653                  T42A:   MTPD    @-(R3)          ;SEG LENGTH ABORT AT MOV16
004664  000000                  T42B:   HLT                     ;ERROR! FAILED TO ABORT

004666  022706  001076          T42C:   CMP     #KPTR-2,KSP     ;CHECK STACK PTR ( 1 POP, 2 PUSHES)
004672  001401                          BEQ     .+4
004674  000000                          HLT                     ;ERROR! INCORRECT STACK PTR
004676  022767  040015  172666          CMP     #PLA+VS6+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
004704  001401                          BEQ     .+4             ;& FAILING PAGE #)
004706  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
004710  022767  004662  172660          CMP     #T42A,SR2       ;CHECK CONTENTS OF SR2
004716  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
004720  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
004722  022703  140100                  CMP     #KI6+100,R3     ;CHECK AUTO-DECREMENT
004726  001401                          BEQ     .+4
004730  000000                          HLT                     ;ERROR! DID NOT AUTO-DEC
004732  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT DST04
                                ;ABORTS WHEN ADDRESS TO JUMP TO IS FETCHED
004734  012737  005002  000250          MOV     #T43C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
004742  012737  000137  017076          MOV     #137,@#PUI2+76  ;000137,T43D =JMP  @#T43D
004750  012737  005000  017100          MOV     #T43D,@#PUI2+100
004756  005037  017102                  CLR     @#PUI2+102
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004762  012767  170000  173006          MOV     #UM+PUM,PSW
004770  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
004774  000137  040076                  JMP     @#UI2+76                ;GO DO INSTRUCTION
        005000                          RETURN=.
        017076                          .=PUI2+76
017076  000137  005000          T43A:   JMP     @#T43D
017102  000000                  T43B:   HLT                             ;ERROR! JMP FAILED
        005000                          .=RETURN
005000  000000                  T43D:   HLT                             ;ERROR! FAILED TO ABORT
005002                          T43C:
005002  022767  040145  172562          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
005010  001401                          BEQ     .+4                     ;& FAILING PAGE #)
005012  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005014  022767  040076  172554          CMP     #UI2+76,SR2             ;CHECK CONTENTS OF SR2
005022  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
005024  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
005026  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT DST12
                        ;WHEN INSTRUCTION FETCHES ADDRESS OF DEST. OPERAND. (UI5+4)
005030  012737  005100  000250          MOV     #T44C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
005036  012767  170000  172732          MOV     #UM+PUM,PSW             ;USER MODE!!!,PREV USER MODE!!
005044  012706  000600                  MOV     #UPTR,USP               ;SET USER STACK PTR
005050  012703  120006                  MOV     #UI5+6,R3
005054  012737  177776  017204          MOV     #-2,@#PUI5+4
005062  012737  004753  017200          MOV     #4753,@#PUI5            ;004753 = JSR 7,@-(R3)
005070  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
005074  000137  120000                  JMP     @#UI5                   ;GO DO INST.
        005100                          RETURN=.
        017200                          .=PUI5
017200  004753                  T44A:   JSR     7,@-(R3)
017202  000000                  T44B:   HLT                             ;ERROR!
        005100                          .=RETURN
005100  022706  001074          T44C:   CMP     #KPTR-4,KSP             ;CHECK STACK PTR
005104  001401                          BEQ     .+4
005106  000000                          HLT                             ;INCORRECT STACK PTR
005110  022767  140157  172454          CMP     #NRA+PLA+UPG+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
005116  001401                          BEQ     .+4                     ;& FAILING PAGE #)
005120  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005122  022767  120000  172446          CMP     #UI5,SR2                ;CHECK CONTENTS OF SR2
005130  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
005132  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
005134  106506                  MFPD    USP                             ;GET USER STACK PTR (ON KERNEL STACK)
005136  022716  000576                  CMP     #UPTR-2,(KSP)           ;CHECK THAT USER STACK DID NOT
005142  001401                          BEQ     .+4                     ;GET PUSHED
005144  000000                          HLT                             ;ERROR!
005146  022703  120004                  CMP     #UI5+4,R3               ;CHECK AUTO-DEC
005152  001401                          BEQ     .+4
005154  000000                          HLT                             ;ERROR!
005156  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT DST10
                        ;WHEN INSTRUCTION FETCHES DESTINATION OPERAND (UIPDR5)
005160  012737  005232  000250          MOV     #T45C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
005166  012767  170000  172602          MOV     #UM+PUM,PSW             ;USER MODE!!!,PREV USER MODE!!
005174  012706  000600                  MOV     #UPTR,USP               ;SET USER STACK PTR
```

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005200  005016                          CLR     (USP)
005202  012737  012667  017200          MOV     #012667,@#PUI5  ;012667,057606 = MOV  (USP)+,UIPDR5
005210  012737  057606  017202          MOV     #57606,@#PUI5+2 ;INSTRUCTION
005216  005037  017204                  CLR     @#PUI5+4
005222  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
005226  000137  120000                  JMP     @#UI5
        005232                          RETURN=.
        017200                          .=PUI5
017200  012667  057606          T45A:   MOV     (USP)+,UIPDR5-UI5+PUI5
017204  000000                  T45B:   HLT                     ;ERROR! FAILED TO ABORT
        005232                          .=RETURN

005232                          T45C:
005232  022767  140157  172332          CMP     #NRA+UPG+PLA+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
005240  001401                          BEQ     .+4             ;& FAILING PAGE #)
005242  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005244  022767  120000  172324          CMP     #UI5,SR2        ;CHECK CONTENTS OF SR2
005252  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005254  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
005256  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
005262  005737  177612                  TST     @#UIPDR5
005266  001001                          BNE     .+4
005270  000000                          HLT
005272  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS


                                ;CHECK ABORT AT JSR01
                                ;ABORTS WHEN REGISTER (R5) IS PUSHED ON USER STACK
005274  012737  005344  000250          MOV     #T50C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005302  012767  170000  172466          MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
005310  012706  100000                  MOV     #UI4,USP        ;SET USER STACK PTR
005314  005037  017276                  CLR     @#PUI4-2
005320  005005                          CLR     R5
005322  012767  005342  173654          MOV     #T50D,TEMP
005330  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
005334  004577  173644          T50A:   JSR     5,@TEMP         ;NON-RES ABORT AT JSR01
005340  000000                  T50B:   HLT                     ;JSR FAILED & DID NOT ABORT
005342  000000                  T50D:   HLT                     ;ERROR! FAILED TO ABORT
005344                          T50C:
005344  022767  140147  172220          CMP     #NRA+PLA+UPG+VS3+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
005352  001401                          BEQ     .+4             ;& FAILING PAGE #)
005354  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005356  022767  005334  172212          CMP     #T50A,SR2       ;CHECK CONTENTS OF SR2
005364  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005366  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
005370  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
005372  022716  077776                  CMP     #UI4-2,(KSP)    ;CHECK THAT USER STACK PTR DEC-
005376  001401                          BEQ     .+4             ;REMENTED
005400  000000                          HLT                     ;ERROR!
005402  005705                          TST     R5
005404  001401                          BEQ     .+4
005406  000000                          HLT
005410  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT TRP11
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                                        ;ABORTS WHEN STATUS IS PUSHED ONTO USER STACK
005412  012737  005456  000250                MOV     #T52C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005420  012767  140000  172374                MOV     #UM,IOTVEC+2
005426  012767  005454  172364                MOV     #T52D,IOTVEC
005434  012767  170000  172334                MOV     #UM+PUM,PSW     ;USER MODE!!!,PREV USER MODE!!
005442  005006                                CLR     USP             ;SET USER STACK PTR
005444  005237  177572                        INC     @#SR0           ;ENABLE MEMORY MGMT
005450  000004                        T52A:   IOT                     ;NON-RESIDENT ABORT AT TRP11
005452  000000                        T52B:   HLT                     ;ERROR! IOT & ABORT FAILED
005454  000000                        T52D:   HLT                     ;ERROR! ABORT FAILED
005456  022706  001074                T52C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
005462  001401                                BEQ     .+4
005464  000000                                HLT                     ;INCORRECT STACK PTR
005466  022766  170000  000002                CMP     #UM+PUM,2(KSP)  ;CHECK THAT CORRECT STATUS
005474  001401                                BEQ     .+4             ;WAS SAVED ON THE STACK
005476  000000                                HLT                     ;ERROR! INCORRECT STATUS
005500  022767  140157  172064                CMP     #NRA+UPG+PLA+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
005506  001401                                BEQ     .+4             ;& FAILING PAGE #)
005510  000000                                HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005512  022767  005450  172056                CMP     #T52A,SR2       ;CHECK CONTENTS OF SR2
005520  001401                                BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
005522  000000                                HLT                     ;ERROR! INCORRECT PC IN SR2
005524  122737  000060  177777                CMPB    #60,@#PSW+1     ;CHECK FOR CORRECT PSW ON ABORT
005532  001401                                BEQ     .+4             ;(KM+PUM IN HIGH BYTE)
005534  000000                                HLT                     ;ERROR! INCORRECT PSW AFTER ABORT
005536  012737  030000  177776                MOV     #KM+PUM,@#PSW   ;KERNEL MODE!!! PREV SUPER MODE!!
005544  106506                                MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
005546  022716  177776                        CMP     #0-2,(KSP)      ;CHECK PUSHES
005552  001401                                BEQ     .+4
005554  000000                                HLT                     ;ERROR!
005556  104000                                SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                        ;CHECK ABORT AT TRP14
                                        ;ABORTS WHEN RETURN PC IS PUSHED ONTO USER STACK
005560  012737  005626  000250                MOV     #T53C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
005566  012767  170000  172202                MOV     #UM+PUM,PSW     ;USER MODE, PREV. USER MODE
005574  012706  040002                        MOV     #UI2+2,USP              ;SET USER STACK PTR
005600  012767  005624  172212                MOV     #T53D,IOTVEC
005606  012767  140340  172206                MOV     #UM+PRTY7,IOTVEC+2
005614  005237  177572                        INC     @#SR0           ;ENABLE MEMORY MGMT
005620  000004                        T53A:   IOT                     ;NON-RESIDENT ABORT AT TRP14
005622  000000                        T53B:   HLT                     ;ERROR! IOT & ABORT FAILED
005624  000000                        T53D:   HLT                     ;ERROR! ABORT FAILED
005626  022706  001074                T53C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
005632  001401                                BEQ     .+4
005634  000000                                HLT                     ;INCORRECT STACK PTR
005636  022716  005622                        CMP     #T53B,(KSP)     ;CHECK RETURN PC
005642  001401                                BEQ     .+4
005644  000000                                HLT
005646  022766  170000  000002                CMP     #UM+PUM,2(KSP)  ;CHECK THAT CORRECT STATUS
005654  001401                                BEQ     .+4             ;WAS SAVED ON THE STACK
005656  000000                                HLT                     ;ERROR! INCORRECT STATUS
005660  022767  040143  171704                CMP     #PLA+UPG+VS1+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
005666  001401                                BEQ     .+4             ;& FAILING PAGE #)
005670  000000                                HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
005672  022767  005620  171676                CMP     #T53A,SR2       ;CHECK CONTENTS OF SR2
```

```
005700  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
005702  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
005704  012767  030000  172064          MOV     #KM+PUM,PSW
005712  106506                          MFPD    USP                     ;PUSH USER STACK PTR ONTO KERNEL STACK
005714  022716  037776                  CMP     #UI2-2,(KSP)            ;CHECK THAT USER STACK PTR WAS
005720  001401                          BEQ     .+4                     ;DECREMENTED BY 4
005722  000000                          HLT                             ;ERROR!
005724  005067  172072                  CLR     IOTVEC+2
005730  012767  000022  172062          MOV     #IOTVEC+2,IOTVEC
005736  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT FETO3
005740  012737  006002  000250          MOV     #T56C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
005746  012767  170000  172022          MOV     #UM+PUM,PSW
005754  012706  000600                  MOV     #UPTR,USP
005760  012746  140000                  MOV     #UM,-(USP)
005764  012746  040100                  MOV     #UI2+100,-(USP)
005770  005037  017100                  CLR     @#PUI2+100
005774  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006000  000002                  T56B:   RTI
        006002                          RETURN=.
        017100                          .=PUI2+100
017100  000000                  T56A:   HLT                             ;ERROR! FAILED TO ABORT AT FETO3
        006002                          .=RETURN
006002  022706  001074          T56C:   CMP     #KPTR-4,KSP             ;CHECK STACK PTR
006006  001401                          BEQ     .+4
006010  000000                          HLT
006012  022767  040145  171552          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
006020  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006022  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006024  022767  006000  171544          CMP     #T56B,SR2               ;CHECK CONTENTS OF SR2
006032  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006034  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
006036  104000                          SCOPE                           ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                        ;CHECK ABORT AT FETO2
006040  012767  170000  171730          MOV     #UM+PUM,PSW
006046  012737  006100  000250          MOV     #T60C,@#MMVEC           ;LOAD MEM MGMT ERROR VECTOR
006054  012737  000005  017076          MOV     #5,@#PUI2+76            ;5 IS A RESET INSTRUCTION
006062  005037  017100                  CLR     @#PUI2+100
006066  005005                          CLR     R5
006070  005237  177572                  INC     @#SR0                   ;ENABLE MEMORY MGMT
006074  000137  040076                  JMP     @#UI2+76                ;GO EXECUTE RESET
        006100                          RETURN=.
        017076                          .=PUI2+76
017076  000005                  T60A:   RESET                           ;ABORTS WHEN NEXT INST. FETCHED
017100  000000                          HLT                             ;ERROR! FAILED TO ABORT
        006100                          .=RETURN

006100                          T60C:
006100  022767  040145  171464          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
006106  001401                          BEQ     .+4                     ;& FAILING PAGE #)
006110  000000                          HLT                             ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006112  022767  040076  171456          CMP     #UI2+76,SR2             ;CHECK CONTENTS OF SR2
006120  001401                          BEQ     .+4                     ;(PC OF ABORTED INSTRUCTION)
006122  000000                          HLT                             ;ERROR! INCORRECT PC IN SR2
```

```
006124  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS


                                ;CHECK ABORT AT
                                ;ABORTS WHEN INST FOLLOWING MARK IS FETCHED
006126  012767  170000  171642          MOV     #UM+PUM,PSW
006134  012737  006164  000250          MOV     #T63C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006142  012746                          MOV     (PC)+,-(USP)    ;PUSH MARK INST ON USER STACK
006144  006401                          MARK    1               ;PUSH THIS  INST ON USER STACK
006146  012705  040100                  MOV     #UI2+100,R5     ;AFTER MARK EXECUTE INST AT T63A
006152  005037  017100                  CLR     @#T63A          ;WHICH IS A HALT
006156  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006162  000116                          JMP     (USP)           ;GO EXECUTE MARK AT SPTR-2
        006164                          RETURN=.
        017100                          .=PUI2+100
017100  000000                  T63A:   HLT                     ;SEG ABORT WHEN THIS INST. FETCHED AT
        006164                          .=RETURN
006164  022706  001074          T63C:   CMP     #KPTR-4,KSP     ;CHECK STACK PTR
006170  001401                          BEQ     .+4
006172  000000                          HLT
006174  022767  040145  171370          CMP     #PLA+UPG+VS2+1,SR0      ;CHECK SR0 (ABORT CONDITIONS
006202  001401                          BEQ     .+4             ;& FAILING PAGE #)
006204  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006206  022767  000576  171362          CMP     #UPTR-2,SR2     ;CHECK CONTENTS OF SR2
006214  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006216  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006220  106506                          MFPD    USP             ;PUSH USER STACK PTR ONTO KERNEL STACK
006222  022716  000604                  CMP     #UPTR+4,(KSP)   ;CHECK USER STACK PTR
006226  001401                          BEQ     .+4
006230  000000                          HLT                     ;ERROR! INCORRECT USER STACK PTR
006232  023705  000602                  CMP     @#UPTR+2,R5     ;CHECK CONTENTS OF R5
006236  001401                          BEQ     .+4
006240  000000                          HLT                     ;ERROR!
006242  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT TST.10
                                ;ABORTS WHEN INST FOLLOWING TST IS FETCHED
006244  012737  006300  000250          MOV     #T64C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006252  012702  177777                  MOV     #-1,R2          ;R2=STATUS WORD ADDRESS (ODD BYTE)
006256  012737  105722  016676          MOV     #105722,@#KI0-2 ;105722=TSTB (R2)+
006264  005037  016700                  CLR     @#KI0
006270  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006274  000137  016676                  JMP     @#KI0-2         ;GO EXECUTE INSTRUCTION
        006300                          RETURN=.
        016676                          .=KI0-2
016676  105722                  T64A:   TSTB    (R2)+           ;ABORTS WHEN NEXT INST. IS FETCHED
016700  000000                  T64B:   HLT                     ;ERROR! FAILED TO ABORT
        006300                          .=RETURN
006300                          T64C:
006300  022767  040001  171264          CMP     #PLA+VS0+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006306  001401                          BEQ     .+4             ;& FAILING PAGE #)
006310  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006312  022767  016676  171256          CMP     #T64A,SR2       ;CHECK CONTENTS OF SR2
006320  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006322  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006324  005702                          TST     R2              ;CHECK AUTO-INC
```

```
006326  001401                          BEQ     .+4
006330  000000                          HLT                     ;ERROR! AUTO-INC FAILED
006332  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT D00.90
                                ;ABORTS WHEN INSTRUCTION FOLLOWING MOVB IS FETCHED
006334  012737  006372  000250          MOV     #T66C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006342  012703  016700                  MOV     #KIO,R3
006346  005013                          CLR     (3)             ;SET UP CODE (HALT)
006350  012743                          MOV     (7)+,-(R3)
006352  114203                          MOVB    -(R2),R3        ;THIS INSTRUCTION IS NOT EXECUTED
006354  012702  001204                  MOV     #TEMP,R2
006360  012722  100000                  MOV     #100000,(R2)+
006364  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006370  000113                          JMP     (R3)            ;GO EXECUTE MOVB INSTRUCTION
        006372                          RETURN=.
        016676                          .=KIO-2
016676  114203          T66A:           MOVB    -(R2),R3        ;ABORTS WHEN THE NEXT INST IS FETCHED
016700  000000          T66B:           HLT                     ;ERROR! FAILED TO ABORT HERE
        006372                          .=RETURN
006372                  T66C:
006372  022767  040001  171172          CMP     #PLA+VS0+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006400  001401                          BEQ     .+4             ;& FAILING PAGE #)
006402  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006404  022767  016676  171164          CMP     #T66A,SR2       ;CHECK CONTENTS OF SR2
006412  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006414  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006416  022703  177600                  CMP     #177600,R3      ;MOVB TO A REGISTER EXTENDS
006422  001401                          BEQ     .+4             ;THE SIGN
006424  000000                          HLT                     ;ERROR! INCORRECT RESULT IN R3
006426  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ACCESS VIOLATION ABORT
                                ;ABORTS WHEN SOURCE DATA IS FETCHED USING DATIP WITH DEST ADDRESS READ ONLY
006430  012737  006462  000250          MOV     #T72C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006436  112737  000002  172314          MOVB    #RD0,@#KIPDR6   ;SET KERNEL ADDRESS 140000-140077
                                                                ;READ ABORT ON WRITE
006444  005037  016700                  CLR     @#PKI6          ;CLEAR CORRESPONDING PHYSICAL ADDRESS
006450  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006454  000261                          SEC                     ;SET 'C'
006456  005537  140000          T72A:   ADC     @#KI6           ;ABORTS WHEN DATA IS FETCHED USING DATIP
006462                  T72C:
006462  022767  020015  171102          CMP     #AVA+VS6+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006470  001401                          BEQ     .+4             ;& FAILING PAGE #)
006472  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006474  022767  006456  171074          CMP     #T72A,SR2       ;CHECK CONTENTS OF SR2
006502  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006504  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006506  022766  000001  000002          CMP     #C,2(KSP)       ;CHECK THAT CORRECT STATUS
006514  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
006516  000000                          HLT                     ;ERROR! INCORRECT STATUS
006520  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
006524  005737  016700                  TST     @#PKI6          ;CHECK THAT ADDRESS WAS NOT WRITTEN
006530  001401                          BEQ     .+4
006532  000000                          HLT                     ;ERROR! DATA WRITTEN INTO READ ONLY ADDRESS
```

```
006534  104000                          SCOPE

                                ;CHECK ACCESS VIOLATION ABORT
                                ;ABORTS WHEN SOURCE DATA IS FETCHED FROM READ ONLY SPACE USING A DATIP.
006536  012737  006562  000250          MOV     #T73C,@#MMVEC   ;LOAD MEM MGMT ERROR VECTOR
006544  005037  016700                  CLR     @#PKI6          ;PRESET ADDRESS
006550  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006554  000261                          SEC                     ;SET 'C'
006556  106037  140001          T73A:   RORB    @#KI6+1         ;ABORTS WHEN RESULT IS WRITTEN
006562                          T73C:
006562  022767  020015  171002          CMP     #AVA+VS6+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006570  001401                          BEQ     .+4             ;& FAILING PAGE #)
006572  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006574  022767  006556  170774          CMP     #T73A,SR2       ;CHECK CONTENTS OF SR2
006602  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006604  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006606  022766  000001  000002          CMP     #C,2(KSP)       ;CHECK THAT CORRECT STATUS
006614  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
006616  000000                          HLT                     ;ERROR! INCORRECT STATUS
006620  005037  177572                  CLR     @#SR0           ;DISABLE MEMORY MGMT
006624  005737  016700                  TST     @#PKI6
006630  001401                          BEQ     .+4
006632  000000                          HLT                     ;ERROR! ADDRESS WAS WRITTEN
006634  012737  000006  172314          MOV     #6,@#KIPDR6     ;SET KDPDR R/W
006642  104000                          SCOPE                   ;SCOPE STORES PC IN R1 & SETS ALL STACK PTRS

                                ;CHECK ABORT AT SVC.80 USING 'T' BIT TRAP
                                ;CHECK ABORT WHEN PSW IS NON-RESIDENT
006644  012737  006700  000250          MOV     #T102C,@#MMVEC  ;LOAD MEM MGMT ERROR VECTOR
006652  005002                          CLR     R2              ;PRESET DESTINATION
006654  005237  177572                  INC     @#SR0           ;ENABLE MEMORY MGMT
006660  012746  140017                  MOV     #UM+17,-(KSP)   ;'NEW' STATUS ON STACK
006664  012746  006672                  MOV     #.+6,-(KSP)     ;RETURN PC
006670  000002                          RTI                     ;SET STATUS AND EXECUTE NEXT INST.
006672  013702  177776          T102A:  MOV     @#PSW,R2        ;PSW IS NON-RESIDENT IN USER MODE
006676  000000                          HLT                     ;ERROR! FAILED TO ABORT
006700                          T102C:
006700  022767  140157  170664          CMP     #NRA+PLA+UPG+VS7+1,SR0  ;CHECK SR0 (ABORT CONDITIONS
006706  001401                          BEQ     .+4             ;& FAILING PAGE #)
006710  000000                          HLT                     ;ERROR! INCORRECT ABORT CONDITIONS OR PAGE IDENT
006712  022767  006672  170656          CMP     #T102A,SR2      ;CHECK CONTENTS OF SR2
006720  001401                          BEQ     .+4             ;(PC OF ABORTED INSTRUCTION)
006722  000000                          HLT                     ;ERROR! INCORRECT PC IN SR2
006724  022766  140017  000002          CMP     #UM+17,2(KSP)   ;CHECK THAT CORRECT STATUS
006732  001401                          BEQ     .+4             ;WAS SAVED ON THE STACK
006734  000000                          HLT                     ;ERROR! INCORRECT STATUS
006736  005702                          TST     R2              ;CHECK THAT R2 WAS NOT LOADED
006740  001401                          BEQ     .+4
006742  000000                          HLT                     ;ERROR! DEST (R2) WAS CHEANGED
006744  104000                          SCOPE

006746  005267  172226          END:    INC     ICNT
006752  022767  005000  172220          CMP     #5000,ICNT
006760  001402                          BEQ     DONE
006762  000167  172232                  JMP     BEGIN
```

```
007766  012767  000007  170572  DONE:   MOV     #7,TPB
007774  105767  170564          TSTB    TPS
010000  100375                  BPL     .-4
010002  012767  000000  170556          MOV     #0,TPB
010010  105767  170550          TSTB    TPS
010014  100375                  BPL     .-4
010016  013702  000042          MOV     @#42,%2         ;GET DECTAPE MONITOR RETURN ADDRESS
010022  001404                  BEQ     DONE1           ;DO NOT RETURN TO MON IF (42)=0
010024  004712          SENDAD: JSR     7,(2)           ;RETURN TO DECTAPE MONITOR
010026  000240                  NOP                     ;ACT11
010030  000240                  NOP                     ;OVERLAY
010032  000240                  NOP                     ;AREA
010034  000167  172152  DONE1:  JMP     START

        000001                  .END
```

E03


```
AVA     = 020000
BEGIN     001220
BIT13   = 020000
BIT14   = 040000
BIT15   = 100000
BIT6    = 000100
BIT8    = 000400
C       = 000001
DM      = 000400
DONE      006766
DONE1     007034
DWN     = 000010
ED      = 000010
EMTVEC= 000030
END       006746
ENMM    = 000001
ERRVEC= 000010
FPVEC   = 000244
HLT     = 000000
ICNT      001200
IOTVEC= 000020
IS      = 000000
KIPAR0= 172340
KIPAR1= 172342
KIPAR2= 172344
KIPAR3= 172346
KIPAR4= 172350
KIPAR5= 172352
KIPAR6= 172354
KIPAR7= 172356
KIPDR0= 172300
KIPDR1= 172302
KIPDR2= 172304
KIPDR3= 172306
KIPDR4= 172310
KIPDR5= 172312
KIPDR6= 172314
KIPDR7= 172316
KIO     = 016700
KI6     = 140000
KM      = 000000
KPG     = 000000
KPTR    = 001100
KSP     =%000006
MMK       001320
MMVEC   = 000250
MMR       001232
N       = 000010
NRA     = 100000
NRD     = 000000
PC      =%000007
.       = 007040

PFVEC   = 000024
PKI0    = 016600
PKI6    = 016700
PKM     = 000000
PLA     = 040000
PRTY4   = 000200
PRTY7   = 000340
PSW     = 177776
PUI1    = 017100
PUI2    = 017000
PUI3    = 017400
PUI4    = 017300
PUI5    = 017200
PUM     = 030000
RDO     = 000002
RETURN= 006372
RW      = 000006
RWT     = 000004
R0      =%000000
R1      =%000001
R2      =%000002
R3      =%000003
R4      =%000004
R5      =%000005
SCOPE   = 104000
SCOPEA    000442
SCOPEX    000476
SHLI      000400
SHLTA     000436
SP      =%000006
SR0     = 177572
SROT      001202
SR1     = 177574
SR2     = 177576
START     001212
SWR     = 177570
T       = 000020
TBITVE= 000014
TEMP    = 001204
TKB     = 177562
TKS     = 177560
TPB     = 177566
TPS     = 177564
TPVEC   = 000064
TRAPVE= 000034
T0        001454
T0A       001504
T0B       001506
T0C       001510
T1A       001610
T1B       001612

T1C       001614
T10A      002434
T10B      002440
T10C      002442
T102A     006672
T102C     006700
T13A      002536
T13B      002540
T13C      002544
T13D      002542
T14A      002664
T14B      002666
T14C      002672
T14D      002670
T16A      002762
T16B      002764
T16C      002770
T16D      002766
T2A       001704
T2B       001706
T2C       001710
T20A      016676
T20B      016702
T20C      003112
T21A      016676
T21B      016702
T21C      003232
T22       016674
T22A      016676
T22AA     016700
T22B      016702
T22C      003332
T24A      003434
T24B      003436
T24C      003440
T25A      003532
T25B      003534
T25C      003536
T3A       002010
T3B       002012
T3C       002014
T30A      003620
T30C      003624
T31A      003742
T31B      003744
T31C      003746
T32A      004054
T32B      004056
T32C      004060
T33A      004160
T33B      004162

T33C      004164
T35A      004252
T35B      004256
T35C      004260
T36A      004356
T36B      004360
T36C      004362
T4A       002160
T4B       002162
T4C       002164
T40A      017074
T40B      017102
T40C      004476
T41A      017200
T41B      017202
T41C      004572
T42A      004662
T42B      004664
T42C      004666
T43A      017076
T43B      017102
T43C      005002
T430      005000
T44A      017200
T44B      017202
T44C      005100
T45A      017200
T45B      017204
T45C      005232
T50A      005334
T50B      005340
T50C      005344
T500      005342
T52A      005450
T52B      005452
T52C      005456
T520      005454
T53A      005620
T53B      005622
T53C      005626
T530      005624
T56A      017100
T56B      006000
T56C      006002
T6A       002300
T6B       002304
T6C       002306
T60A      017076
T60C      006100
T63A      017100
T63C      006164

T64A      016676
T64B      016700
T64C      006300
T66A      016676
T66B      016700
T66C      006372
T7A       002356
T7B       002362
T7C       002364
T72A      006456
T72C      006462
T73A      006556
T73C      006562
UIPAR0= 177640
UIPAR1= 177642
UIPAR2= 177644
UIPAR3= 177646
UIPAR4= 177650
UIPAR5= 177652
UIPAR6= 177654
UIPAR7= 177656
UIPDR0= 177600
UIPDR1= 177602
UIPDR2= 177604
UIPDR3= 177606
UIPDR4= 177610
UIPDR5= 177612
UIPDR6= 177614
UIPDR7= 177616
UI1     = 020000
UI2     = 040000
UI3     = 060000
UI4     = 100000
UI5     = 120000
UM      = 140000
UP      = 000000
UPG     = 000140
UPTR    = 000600
USP     =%000006
V       = 000002
VS0     = 000000
VS1     = 000002
VS2     = 000004
VS3     = 000006
VS4     = 000010
VS5     = 000012
VS6     = 000014
VS7     = 000016
W       = 000100
Z       = 000004
$ENDAD    007024
```

ERRORS DETECTED: 0

F03

```
DBKTF.B MACY11 27(732)  24-MAR-76  16:43  PAGE 32
DBKTFC.P11      SYMBOL TABLE

 DEFAULT GLOBALS GENERATED:  0

 *DBKTFC,DBKTFC/SOL=DBKTFC
 RUN-TIME:  5  9  .8 SECONDS
 RUN-TIME RATIO: 49/15=3.2
 CORE USED:  6K  (11 PAGES)
```

G03

Spooler runtime 5 Seconds, 24 KCS, 125 disk reads, 3 disk writes, 31 pages